

Try

p. 368 #11-15

$$\textcircled{11} \frac{(2r^{-1}s^2t^0)^{-2}}{2rs} \Rightarrow \frac{2^{-2} \cdot r^2 \cdot s^{-4} \cdot t^0}{2rs} = \frac{\frac{1}{2^2} \cdot \frac{r^2}{1} \cdot \frac{1}{s^4}}{2rs} = \frac{r \cdot 1}{2^3 s^5} = \boxed{\frac{r}{8s^5}}$$

$$\textcircled{12} x^5(2x)^3 \rightarrow x^5(2^3 x^3) = x^5 \cdot 8 \cdot x^3 = \boxed{8x^8}$$

$$\textcircled{13} \frac{x^4 x^{-2}}{x^{-5}} \rightarrow \frac{x^2}{x^{-5}} = x^{2-(-5)} = \boxed{x^7}$$

$$\textcircled{14} \frac{(12x^2y^6)^2}{8x^4y^7} = \frac{12^2 \cdot x^4 y^{12}}{8x^4y^7} = \frac{144x^4y^{12}}{8x^4y^7} = \boxed{18y^5}$$

$$\textcircled{15} (4p^2q)(p^2q^3) = \boxed{4p^4q^4}$$

$$\textcircled{21} \sqrt{16x^2}$$

$$4|x|$$

$$\textcircled{22} \sqrt[2]{0.25x^6}$$

$$0.5|x^3|$$

$$\textcircled{23} \sqrt[2]{x^8 y^{18}} \quad \sqrt{64b^{48}}$$

$$x^4 |y^9| \quad 8b^{24}$$

$$\textcircled{65} \sqrt[n]{m^{4n}} = m^4$$

$n = \text{even}$

$$\textcircled{69} \sqrt[n]{m^{4n}} = m^4$$

$n = \text{odd}$

$$\textcircled{64} \sqrt[n]{m^{3n}} = |m^3|$$

$n = \text{even}$

$$\textcircled{68} \sqrt[n]{m^{3n}} = m^3$$

$n = \text{odd}$

$$\textcircled{36} x^4 = \frac{16}{81}$$

$$\sqrt[4]{\quad} \quad \sqrt[4]{\quad}$$

$$x = \pm \sqrt[4]{\frac{16}{81}}$$

$$x = \pm \frac{\sqrt[4]{16}}{\sqrt[4]{81}} = \pm \frac{2}{3}$$

Rules for Radicals

$$\rightarrow \sqrt[n]{a} \cdot \sqrt[n]{b} = \sqrt[n]{ab}$$

$$\sqrt[3]{2} \cdot \sqrt[3]{8} = \sqrt[3]{16}$$

$$\rightarrow \sqrt[n]{\frac{a}{b}} \quad b \neq 0, \quad \frac{\sqrt[n]{a}}{\sqrt[n]{b}}$$

$\rightarrow$  Rationalizing

$$\frac{4}{8} \rightarrow \frac{1}{2}$$

$$\frac{1}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{\sqrt{2}}{\sqrt{4}} = \frac{\sqrt{2}}{2}$$

$$\textcircled{a} \quad \frac{2}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{2\sqrt{3}}{\sqrt{9}} \quad \textcircled{b} \quad \frac{1}{\sqrt{3}} = \frac{\sqrt{3}}{\sqrt{3}} \quad \textcircled{c} \quad \frac{1}{\sqrt[3]{2}} \cdot \frac{\sqrt[3]{2}}{\sqrt[3]{2}} \cdot \frac{\sqrt[3]{2}}{\sqrt[3]{2}} = \frac{\sqrt[3]{4}}{\sqrt[3]{8}} = \frac{\sqrt[3]{4}}{2}$$

$$\textcircled{d} \quad \frac{4}{\sqrt[3]{x^2}} \cdot \frac{\sqrt[3]{x}}{\sqrt[3]{x}} = \frac{4\sqrt[3]{x}}{\sqrt[3]{x^3}} = \frac{4\sqrt[3]{x}}{x}$$

$$\textcircled{e} \quad \frac{4}{\sqrt[3]{x^3}} = \frac{4}{x} \quad \textcircled{f} \quad \frac{4}{\sqrt[3]{x^4}} = \frac{4}{\sqrt[3]{x^3} \cdot \sqrt[3]{x}} = \frac{4}{x\sqrt[3]{x}}$$

# Sect. 7.2

#1-6, 9-15, 27-30

⑨

$$\sqrt{20x^3}$$

$$\sqrt{20}$$

$$\sqrt{x^3} \rightarrow \sqrt{\cancel{x} \cdot \cancel{x} \cdot x} \rightarrow x \sqrt{x}$$

$$\sqrt{x^4} = x$$

$$\begin{aligned} \sqrt{x^5} &= \sqrt{\cancel{x} \cdot \cancel{x} \cdot \cancel{x} \cdot x \cdot x} \\ &= x \cdot x \sqrt{x} \\ &= x^2 \sqrt{x} \end{aligned}$$

$$\begin{aligned} \sqrt[3]{x^4} &= \sqrt[3]{\cancel{x} \cdot \cancel{x} \cdot \cancel{x} \cdot x} \\ &= x \sqrt[3]{x} \end{aligned}$$

$$\textcircled{1} 16$$

$$\textcircled{2} 4$$

$$\textcircled{3} -9$$

$$\textcircled{4} 4$$

$$\textcircled{5} \sqrt{-25} = 5i$$

$$\textcircled{6} 5$$

$$\textcircled{9} x\sqrt{20x}$$

$$\textcircled{10} \sqrt[3]{81x^2}$$

$$\textcircled{11} x^2\sqrt{50x}$$

$$\textcircled{12} a\sqrt[3]{32a^2}$$

$$\textcircled{13} y^3\sqrt[3]{54y}$$

$$\textcircled{14} a^3b^3\sqrt{200b}$$

$$\textcircled{15} x^2y\sqrt[3]{-250y^2}$$

$$(9) \quad \sqrt{20x^3} = x\sqrt{20x}$$

$$(10) \quad \sqrt[3]{81x^2} \quad \sqrt[3]{81x^2}$$